

ICS 77.120.99
CCS H 63

YS

**NONFERROUS METALS INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

YS/T 568.2-2008

Replacing YS/T 568.2-2006

**Chemical analysis methods for zirconium oxide and hafnium
oxide. Determination of iron content. Sulfosalicylic acid
spectrophotometric method**

氧化锆、氧化铪化学分析方法 铁量的测定 磺基水杨酸分光光度法

(English Translation)

Issued on: March 12, 2008

Implemented on: September 1, 2008

Issued by: National Development and Reform Commission

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Foreword

YS/T 568 "zirconium, hafnium oxide chemical analysis method" is divided into 11 parts.

--- Part 1. Determination of zirconium and hafnium oxide combined amount of mandelic acid gravimetric method;

--- Part 2. Determination of iron content sulfonic acid spectrophotometry;

--- Part 3. Determination of silicon content - Molybdenum blue spectrophotometric method;

--- Part 4. Determination of aluminum content of chromium azure S- cetylpyridinium chloride spectrophotometry;

--- Part 5. Determination of sodium content by flame atomic absorption spectrometry;

--- Part 6. Determination of the amount of titanium di Zhao DAM spectrophotometry;

--- Part 7. Determination of phosphorus content of antimony salt - ascorbic acid - phosphorus molybdenum blue spectrophotometric method;

--- Part 8. zirconia aluminum, calcium, magnesium, manganese, sodium, nickel, iron, titanium, zinc, molybdenum, vanadium, hafnium content - Inductively coupled plasma atomic Emission spectrometry;

--- Part 9. hafnium oxide of aluminum, calcium, magnesium, manganese, sodium, nickel, iron, titanium, zinc, molybdenum, vanadium, zirconium content - Inductively coupled plasma atomic Emission spectrometry;

--- Part 10. Determination of manganese content - Potassium periodate spectrophotometric method;

--- Part 11. Determination of alpha- linked furoylhydrazone nickel dioxime spectrophotometric method.

This is Part 2.

The partial replacement of YS/T 568.2-2006 "zirconium oxide, hafnium Determination of iron content" (formerly GB/T 2590.2-1981).

This portion of YS/T 568.2-2006 compared to the main changes are as follows.

--- Curve by the scope of 0 ~ 7.0µg/mL was adjusted to 0 ~ 2.5µg/mL;

--- Added "7.1 repeatability" clause;

--- Added "8 Quality assurance and control" clause.

The non-ferrous metal part by the National Standardization Technical Committee and centralized.

This part by the Beijing Nonferrous Metal Research Institute, China Nonferrous Metals Industry Institute of Standards Metrology and Quality is responsible for drafting.

This part by the Guangzhou Research Institute of Nonferrous Metals, Beijing Nonferrous Metal Research Institute drafted.

1 Scope

This section specifies the determination of zirconia, hafnia iron content.

This section applies to zirconium, hafnium oxide - Determination of iron content. Measuring range. 0.03% to 2.0%.

2 Method summary

Sample with sulfuric acid, ammonium sulfate dissolved in ammonia solution pH8 ~ 11, the iron and sulfosalicylic acid to form a yellow complex in a spectrophotometer Meter measuring the absorbance at a wavelength of 425nm.

Zirconium, hafnium matrix without interference. Each test solution manganese exists 20µg, 50µg copper, nickel, uranium, 300µg aluminum, 500µg thorium, 1000µg Titanium, phosphorus does not interfere with the determination. Mn greater than 30µg, there is interference when uranium is greater than 100µg, respectively, with hydroxylamine hydrochloride and ammonium carbonate masking.

3 Reagents

3.1

ammonium sulfate.

3.2

sulfate (ρ 1.84g/mL).

3.3

sulfosalicylic acid solution (250g/L).

3.4

hydroxylamine hydrochloride solution (100g/L).

3.5

Ammonia (ρ 0.90g/mL).

3.6

ammonium carbonate solution (100g/L).

3.7

nitric acid (1 + 1).

3.8

iron standard stock solution. Weigh 1.0000g metallic iron [(Fe) > 99.9%], placed in 100mL beaker, add 30mL of nitric acid (3.7) until completely dissolved after heating to remove oxides of nitrogen, cooled and transferred to 1L volumetric flask, dilute with water to the mark. This solution 1mL containing 1mg iron.

3.9

iron standard solution. Pipette 25.00mL iron standard stock solution (3.8), placed in 250mL volumetric flask, dilute to the mark with water, shake uniform. This solution 1mL containing 100 μ g iron.

4 Instrument

Spectrophotometer.

5.1 Sample

Weigh 0.10g sample, accurate to 0.0001g.

5.2 Determination of the number of Two independent measurement averaged.

5.3 Blank test

Along with the sample (5.1) blank test.

5.4 Determination

5.4.1

The sample (5.1) was placed in 150mL beaker, was added 2.5mL of sulfuric acid (3.2), 2.5g of ammonium sulfate (3.1), covered with a watch glass, in